108. Opuscula Entomologica. Lund, Sweden.
109. Oyo-Kontyu (Nippon Society of Applied Entomology). Tokyo.
110. Pacific Science. Honolulu.
111. Pan-Pacific Entomologist. San Francisco, Cal.
112. Parasitology. London.
113. Physiological Zoology. Chicago.
114. Polskie Pismo Entomologiczne. Wroclaw, Poland.
115. Psyche; A Journal of Entomology. Cambridge, Mass.
116. Quarterly Journal of Microscopical Science. London.
117. Revista Brasileira de Biologia. Rio de Janeiro.
118. Revista de Investigaciones Agricultura. (Argent. Min. Agr.) B. A.
119. Revue Française de Lepidopterologie. Douelle, France.
120. Revue Suisse de Zoologie. Geneva, Switzerland.
121. Rio de Janeiro. Instituto Oswaldo Cruz, Memorias.
122. Rio de Janeiro. Museu Nacional do Brasil, Boletim, Zool.
123. Rivista di Parassitologia. Rome, Italy.
124. Royal Entomological Society of London, Proceedings, Ser. A.
125. Royal Entomological Society of London, Proceedings, Ser. B.
126. Royal Entomological Society of London, Transactions.
127. Royal Society of London, Proceedings, Ser. B.
128. São Paulo, Brazil. Depart. Zool., Secr. Agr., Papéis Avulsos.
129. São Paulo, Brazil. Instituto Biologico, Arquivos.
130. Schweizerische Entomologische Gesellschaft, Mitteilungen. Bern.
131. Smithsonian Miscellaneous Collections. Washington, D. C.
132. Sociedad Cientifica Argentina, Anales. Buenos Aires.
133. Sociedad Entomológica Argentina, Revista. Buenos Aires.
134. Sociedad Mexicana de Historia Natural, Revista. Mexico City.
135. Société d'Histoire Naturelle de Toulouse, Bulletin.
136. Société Entomologique de Belgique, Bulletin et Annales. Brussels.
137. Société Entomologique de France, Annales. Paris.
138. Société Entomologique de France, Bulletin. Paris.
139. Société Fouad I d'Entomologie, Bulletin. Cairo, Egypt.
140. Société Linneenne Lyon, Bulletin Mensuel.
141. Société Zoologique de France, Bulletin. Paris.
142. Society for British Entomology, Journal. Bournemouth, England.
143. Society for British Entomology, Transactions. Bournemouth, Eng.
144. South London Entomological & Nat. Hist. Society, Proc. & Trans.
145. Southern California Academy of Sciences, Bulletin. Los Angeles.
146. Systematic Zoology. Washington, D. C.
147. Tennessee Academy of Sciences, Journal. Nashville.
148. Texas Journal of Science. College Station, Texas.
149. Tijdschrift voor Entomologie. Amsterdam.
150. Tohoku University. Science Reports, Ser. 4. Tohoku, Japan.
151. U. S. National Museum, Proceedings. Washington, D. C.
152. Washington Academy of Sciences, Journal. Washington, D. C.
153. Wasmann Journal of Biology. San Francisco, Cal.
154. Zoologica. New York.
155. Zoological Society of Bengal, Proceedings. Calcutta, India.
156. Zoological Society of London, Proceedings.
157. Zoologische Jahrbücher. Abt. Anatomie u. Ontogenie. Jena.
158. Zoologische Jahrbücher. Abt. Systematik, Ökologie u. Geogr. Jena.
159. Zoologische Jahrbücher. Abt. allg. Zoologie u. Physiologie. Jena.
160. Zoologischer Anzeiger. Leipzig.

53. Entomological Society of British Columbia, Proceedings. Vernon.
54. Entomological Society of Ontario, Annual Report. Guelph.
55. Entomological Society of Southern Africa, Journal. Pretoria.
56. Entomological Society of Washington, Proceedings. Washington, D. C.
57. Entomologische Berichten. (Ned. Ent. Ver.) Amsterdam.
58. The Entomologist. London.
59. L'Entomologiste. Paris.
60. Entomologist's Monthly Magazine. London.
61. Eos; Revista Española de Entomologia. Madrid.
62. Evolution. New York.
63. Faune de l'Union Française (Formerly Faune de l'Empire Français).
64. Florida Entomologist. Gainesville.
65. Folia Universitaria. Cochabamba, Bolivia.
66. Great Basin Naturalist. Provo, Utah.
67. Harvard Museum of Comparative Zool. Breviora. Cambridge, Mass.
68. Harvard Museum of Comparative Zoology, Bulletin. Cambridge, Mass.
69. Hawaiian Entomological Society, Proceedings. Honolulu.
70. Hilgardia (California Agr. Expt. Sta.). Berkeley.
71. Illinois State Academy of Sciences, Transactions. Springfield.
72. Institut Scientifique de Madagascar, Mémoires, Ser. E. Tananarive.
73. Iowa State College Journal of Science. Ames.
74. Journal of Animal Ecology. London.
75. Journal of Cellular and Comparative Physiology. Philadelphia.
76. Journal of Economic Entomology. Menasha, Wisconsin.
77. Journal of Experimental Biology. London.
78. Journal of Experimental Zoology. Philadelphia.
79. Journal of Morphology. Philadelphia.
80. Journal of Parasitology. Lancaster, Pa.
81. Kansas Academy of Sciences, Transactions. Manhattan.
82. Kansas Entomological Society, Journal. Lawrence.
83. Kansas University. Science Bulletins. Lawrence.
84. Lambillionea (Union Ent. Belge). Brussels.
85. Lepidopterists' News. New Haven, Conn.
86. Louisiana Academy of Sciences, Proceedings. New Orleans.
87. Mexico. Escuela Nacional de Ciencias Biologicas, Anales.
88. Mexico Univ. Instituto de Biologia, Anales. Mexico City.
89. Michigan Univ. Museum of Zoology, Occasional Papers. Ann Arbor.
90. Microentomology. Stanford University, California.
91. Mocambique; Documentario Trimestral. Lourenço Marques.
92. Mosquito News. New Brunswick, N. J.
93. Musei Zoologici Polonici, Annales. Warsaw, Poland.
94. Musei Zoologici Polonici. Fragmenta Faunistica. Warsaw, Poland.
95. Naples Univ. Instituto e Museo Zoologico, Annuario.
96. National Academy of Sciences, Proceedings. Washington, D. C.
97. Natural History Miscellanea (Chicago Academy of Sciences).
98. Nature. London.
99. Naturforschende Gesellschaft Zurich, Vierteljahrsschrift.
100. Die Naturwissenschaften. Berlin.
101. New York Entomological Society, Journal.
102. Norsk Entomologisk Tidsskrift. Oslo.
103. Notulae Entomologicae. Helsingfors, Finland.
104. Oesterreiche Zoologische Zeitschrift. Vienna.
105. Office National Anti-acridien, Bulletin. Paris.
106. Ohio Journal of Science. Columbus.
107. Oikos; Acta Ecologica Scandinavica. Copenhagen, Denmark.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

American Sarcophagidae—wanted for identification. H. R. Dodge, P.O. Box 185, Chamblee, Georgia.

German lepidopterist wishes to correspond and receive live material (eggs and pupae) in exchange for dried imagoes. Johannes Reichel, Koenigsberg, Krs. Wetzlar 16, Germany.

For exchange—The periodic Cicada, T. septendecim. Desire Lepid., espec. Papil., Sphing. & Speyeria. Also Col., espec. Ceramb. & Lucan. John W. Morris, 2704 Genesee St., Syracuse 9, N. Y.

Cynipid and Itonidid galls—American species wanted; purchase or exchange for British species. Fresh or dried. D. Leatherdale, F.R.E.S., Old Woodstock, Oxford, England.

Wanted—Reprints or papers concerning insects taken in Alaska for inclusion in list of Alaskan insects. R. H. Washburn, Alaska Experiment Station, Palmer, Alaska.

Conopidae of the World wanted. Will pay 10¢ to $1.00 for pinned and labelled specimens. S. Camras, 4407 N. Milwaukee Ave., Chicago 30, Illinois.

Anisoptera—Nearctic sp. wanted for exchange, espec. Ophiog., Arigom., Aeschna, Neurocor., Somatoc., Cordulia, Dorocor., Leucor. R. D. Cuyler, N. C. State College, Raleigh, N. C.

Bembicini and Stizini (Hym., Sphec.) of New World wanted for revis. study. Will return upon request or at end of project. James E. Gillaspy, Dept. of Zoology, Univ. Texas, Austin 12, Texas.

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ENTOMOLOGICAL NEWS

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The Genotypes of Strigamia, Linotaenia, and Scolioplanes (Chilopoda: Geophilomorpha: Dignathodontidae)

By RALPH E. CRABILL, JR., Department of Entomology, Cornell University, Ithaca College

Each of the above three generic names has been applied to the same group of centipedes. Today the latter two still are, and there appears to be no agreement upon which is valid. Actually, neither is valid; only *Strigamia* is, as I shall attempt to show.

In 1842 [1] Gray proposed the name *Strigamia,* included no species but characterized the genus as follows: "Eyes none. Antennae 14 jointed, moniliform, rather elongate. Body linear, depressed. Feet very numerous, fifty pairs or more." Ignoring Gray's name, Newport in 1844 continued to refer species to *Geophilus.* C. L. Koch in 1847,[2] however, erected *Linotaenia* for the reception of three species, but he did not designate a type.

In 1856 [3] Sager described a single Chilopod, *fulva,* which he referred to the previously vacant genus *Strigamia.* Thus, in 1856 the identity and the *type* of *Strigamia* were fixed because, according to Opinion 46 of the International Code of Zoological Nomenclature, if it is not known how many or which species were originally referred to a genus, then that genus theoretically includes all of the species of the world that could satisfy the stipulations of the original generic diagnosis, and if a single species is subsequently placed in the genus and if that species satisfies the

[1] Cyclopaed. of Anat. and Physiol., III, p. 547 (1842).
[2] Revision der Myriapoden, III, pp. 86, 188 (1847).
[3] Proc. Acad. Nat. Sci. Phila., VIII, p. 109 (1856).

7

In that same year Cook interjected still another source of confusion when he reviewed the whole matter once again and concluded, as had Sseliwanoff in 1881,[9] that the European species, properly referred to *Linotaenia,* really were not congeneric with some of the North American forms. Discounting the validity of *Strigamia* on the basis that: ". . . there would seem to be an insurmountable obstacle to the use of his [= Gray's] name in the fact that he published no species under it . . .," Cook of course found no other generic name that was available. since *Scolioplanes* was a synonym of *Linotaenia* and the American forms could not be referred to either anyway in his estimation, so he proposed another name, *Tomotaenia,*[10] and cited *Strigamia parviceps* Wood, 1862 as its genotype. This name was subsequently consigned to an appropriate Avernus in synonymy by the American proponents of *Linotaenia* and the European mainstays of *Scolioplanes.*

When the first serious attempt at a world monograph of the Geophilomorpha was undertaken in 1903 by the late Carl Graf Attems, he discounted *Strigamia, Linotaenia,* and *Tomotaenia* and placed the species previously referred to them by American workers in *Scolioplanes.* Subsequently both he and K. W. Verhoeff, and many others as well, continued to use the Bergsöe and Meinert name for all of the forms involved.

In 1935 Verhoeff erected a new subgenus, *Protoplanes,* under *Scolioplanes.* He pointed out that forms referable to his new group possess a divided ultimate pedal pretergite, whereas the nominate subgeneric forms do not. Regarding *Protoplanes* as essentially Asiatic in contrast to the typically European *Scolioplanes,* he referred *maritimus* (Leach), *hirsutipes* Attems, and *herzgowinensis* sp.n. to it; no type, of course, was established. It is evident now that many of the northeastern North American species are members of Verhoeff's Asiatic subgenus. Among these species is the true[11] *fulva,* the type of *Strigamia.* It fol-

[9] Mem. Acad. St. Petersburg, XL (7), p. 12 (1881).

[10] Amer. Natural., XXIX, p. 866 (1895).

[11] Sager's types at Philadelphia, which I have examined, all possess divided ultimate pedal pretergites. The large, brilliant red centipedes, which have been erroneously referred to *fulva,* are not conspecific with the

stipulations of the original generic diagnosis, then it becomes automatically the type of the genus. Because Sager's *fulva* does meet these requirements and inasmuch as no other species had been referred to *Strigamia* between the time of its proposal in 1842 and the time of Sagar's action in 1856, *fulva* is the type of *Strigamia*.

In 1862[4] H. C. Wood described a number of new species which he correctly referred to the Gray genus. He had evidently examined Sager's typical specimens at the Academy of Natural Sciences in Philadelphia and consequently was able to diagnose the nature of the genus correctly.

Overlooking Koch's *Linotaenia*, Bergsöe and Meinert in 1866[5] proposed still another generic name, *Scolioplanes*, for the reception of *acuminata*, *crassipes*, and *maritima*, the first two of which had already been placed as synonyms in *Linotaenia* by Koch, a fact that Bergsöe and Meinert, curiously enough, were aware of at the time. It is even more puzzling that the European authors have continued to use *Scolioplanes* since the time of its proposal, even though it is obviously a junior synonym of *Linotaenia* Koch. In 1890[6] Pocock, disregarding the claims of *Strigamia*, decried the continued use of the Bergsöe and Meinert name and at the same time stated that *rosulans* Koch [= *acuminata* Leach] was the type of *Linotaenia* Koch. I am aware of no earlier type designation so that presumably the genotype of *Linotaenia* was fixed at that time.

In a paper published posthumously in 1893[7] Bollman reviewed the entire problem, and, completely ignoring *Strigamia*, concluded that the only valid name was *Linotaenia*. Subsequently all American workers, except O. F. Cook, adopted *Linotaenia*, whereas almost all Europeans viewed *Scolioplanes* as the valid name. The type of the latter genus was fixed in 1895[8] by O. F. Cook who cited *maritima* (Leach) as its genotype.

[4] Journ. Acad. Nat. Sci. Phila., (n.s.) V (1862).
[5] Naturh. Tidsskr., (3) IV, p. 98 (1866).
[6] Ann. Mus. Civ. Storia Genova, (2) IX, p. 8 (1890).
[7] Bull. U. S. Nat. Mus., XLVI, p. 142 (1893).
[8] Amer. Natural., XXIX, p. 866 (1895).

S. A. The specimen was 13 mm. long, twice the length of *Brachymetra albinervus* (Am. Serv.) with which he compared it. The following year he [3] examined two more specimens (2 ♂♂ Ecuador) from the Royal Museum of Belgium and concluded that a new genus Charmatometra should be set up for *B. bakeri* Kirkaldy. Since then Drake and Harris,[4] 1935, recorded an apterous female from Bogota and in 1941 [5] "several specimens from Venezuela" without adding to or correcting Kirkaldy's original description.

Since the Kirkaldy type is now in the Francis Huntington Snow Collection of the University of Kansas and the original description is inaccurate and incomplete, it is necessary to correct and supplement the description of both genus and species. Besides the imperfect type I have before me the following:

Colombia, S. A., San Barnardo, Jan. 1939. F. W. Urban. 3 ♂♂, 2 ♀♀;
Venezuela, S. A., Aragua, Jan. 17, 1952. Fred H. Test. 1 ♂ (winged), 1 ♀;
Venezuela, S. A., Near Maracay, Dec. 3, 1951. Fred H. Test. 1 ♂;
Venezuela, S. A., Rancho Grande, Nov. 22, 1951. Fred H. Test. 1 ♂(winged), 1 ♀.

The two males labeled "winged" have the high shouldered pronotum characteristic of winged forms but only the broken bases of the wings are present.

In describing the genus Charmatometra Kirkaldy says: "Length of head twice as great as its width at the base, much wider at the base than between the eyes anteriorly." Even ignoring the eyes as part of the head width at base, the length of the head is to its width as 3:2.3. Of the antennae he says: "First segment subequal to the other three segments together four times as long as the second, third three-fifths longer than the second, a little longer

[3] Kirkaldy, G. W., 1899. Annales de la Soc. Entom. de Belgique, XLIII, pp. 509–510.

[4] Drake, C. J. and Harris, H. M., 1935. Arkiv För Zoologi, XXVIII B, p. 3.

[5] Drake, C. J. and Harris, H. M., 1941. Iowa State College Jl. of Science, XV, No. 3, p. 240.

lows, then, that Verhoeff's *Protoplanes* is a synonym of Gray's nominate subgenus, *Strigamia*, and that *Scolioplanes*, as a subgenus, is still a synonym of *Linotaenia* Koch. Hence, the following scheme obtains: the only valid generic name is *Strigamia* Gray. It includes two subgenera, the typical subgenus, *Strigamia* Gray, and *Linotaenia* Koch.

The complexities of the situation necessitate a conspectus of the involved generic names.

Linotaenia C. L. Koch, 1847.
TYPE: *Linotaenia rosulans* C. L. Koch, 1847 [= *Strigamia* (*Linotaenia*) *acuminata* (Leach)]. (Subsequent designation of Pocock, Ann. Mus. Civ. Storia Genova, (2) IX, p. 8 (1890).)
Scolioplanes Bergsöe and Meinert, 1866.
TYPE: *Geophilus maritimus* Leach, 1817 [= *Strigamia* (*Strigamia*) *maritima* (Leach)]. (Subsequent designation of Cook, Amer. Natural., XXIX, p. 866, and Proc. U. S. Nat. Mus., XVIII, p. 75 (1895).)
Protoplanes Verhoeff, 1935.
TYPE: *Scolioplanes hirsutipes* Attems, 1927 [= *Strigamia* (*Strigamia*) *hirsutipes* (Attems)]. (Present designation.)
Tomotaenia Cook, 1895.
TYPE: *Strigamia parviceps* Wood, 1862 [= *Strigamia parviceps* Wood]. (Original designation.)

Concerning Charmatometra bakeri (Kirkaldy) (Hemiptera: Gerridæ) [1]

By H. B. HUNGERFORD, Lawrence, Kansas

Kirkaldy [2] described the above under the name *Brachymetra bakeri* from a single female specimen that came from Colombia,

Sager types. They are, I am convinced, referable to Woods' despisèd and rejectèd species *bothriopa* which was described in 1862. In a paper soon to be published these two very common northeastern species will be characterized in detail.

[1] Contribution No. 815, Department of Entomology, University of Kansas.

[2] Kirkaldy, G. W., 1898. The Entomologist, XXXI, pp. 101–102.

are not subequal to the first. In his redescription of *B. bakeri* Kirkaldy says: "Intermediate and posterior femora subequal; intermediate femur two-thirds longer than tibia, the latter five times as long as tarsus." Here are the segmental proportions of the middle leg of a male: Femur: tibia: 1st tarsal: 2nd tarsal: : 40: 33: 8: 1.9. In this specimen the tibia is three plus times as long as the tarsus instead of five times. He also says: "Posterior femur about three-fourths longer than the tibia, the latter ten and one quarter times as long as the first segment of tarsus." The tibiae are difficult to measure accurately but here are the proportions of the hind leg of a male: Femur: tibia: 1st tarsal: 2nd tarsal: : 40: 24: 3: 1.6. The tibia is not ten times as long as the first tarsal segment! It is only eight times as long.

Perhaps with these notes it will be possible to recognize *Charmatometra bakeri* Kirkaldy.

Notice to Collectors in National Parks

A recent action to simplify procedures governing the collection of scientific materials in areas administered by the National Park Service is of interest to entomologists.

Formerly, in order to collect insects and arachnids, it has been necessary for entomologists, other than federal employees, to qualify, through appointment by the Department of the Interior, as collaborators without compensation. This involved considerable paper work and delay, both for the applicant and the Government.

The new procedure, authority for which is set forth in *The Federal Register* of May 15, 1953 (18 FR 2831, 2832), excepts the collection of insects and arachnids from the federal employment requirement. It will now be possible for qualified entomologists to submit a simple application form by mail or in person to the Superintendent of the national park or monument concerned who is empowered to issue permits to make collections for scientific purposes.

The interests of science have been served well by regulations intended to preserve in the national parks and monuments a maximum of as nearly as possible undisturbed natural biological associations. Collection of specimens is limited to legitimate scientific collection of such nature as to have no measurable adverse effect upon the biological values involved.

than the fourth; there is a small node between the second and third segments." Actually the first segment of antenna is plainly shorter than other three together (130:150+). The first segment is not four times as long as the second. In the type the first segment is to the second as 170:50.

There is nothing in Kirkaldy's generic description to justify its separation from Brachymetra. However the species *C. bakeri* is considerably larger than any described Brachymetra; the first tarsal segment of the front leg is plainly longer than the second, while in all Brachymetra it is plainly shorter; the front tibia is conspicuously expanded at its tips, which is broadly excavate on its mesal surface and sulcate on the outer surface while in Brachymetra the tibia is but little expanded; the middle and hind femora are considerably longer than the body whereas in Brachymetra they are but slightly, if any, longer. Therefore I am recognizing Charmatometra Kirkaldy as a genus.

Kirkaldy's two descriptions of *C. bakeri* are not quite accurate. The front femora are not "cylindric" but thicker in one diameter than the other. His measurements of antennal and leg segments are also misleading. There are variations to be sure but the description should agree with the type at least.

The description states that the first antennal segment is four times as long as the second and in the generic description above that it is subequal to the other three segments together. Here are the relative lengths of the antennal segments of the type and seven other specimens.

	1st	2nd	3rd	4th
Type ♀	170	50		
♀	170	55		
♀	150	50		
♀	145	55		
♂	140	42	64	56
♂	130	40	60	57
♀	130	37	58	55
♂	120	42	60	55

None of the above has the first segment four times as long as the second, and the last four indicate that the last three segments

Current Entomological Literature

Compiled by VENIA T. PHILLIPS, Librarian

Academy of Natural Sciences of Philadelphia

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania pertaining to entomology, including all arthropods except Crustacea. Coverage will be world-wide as regards major contributions to systematics as well as for all papers on morphology, physiology, embryology, etc. In addition, for species from the Americas and the Pacific (Nearctic, Neotropical and Polynesian regions) all minor contributions to taxonomy, distribution, etc., will also be recorded.

This list gives references of the year 1953 unless otherwise noted. Continued papers, with few exceptions, are recorded only at their first installment.

For other records of general literature and for economic literature, see the Bibliography of Agriculture, Washington, and the Review of Applied Entomology, Series A, London. For records of papers on medical entomology see Review of Applied Entomology, Series B.

NOTE: The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the List of periodicals and serials published in our January and June issues. The number of the volume, and in some cases, the part, heft, &c. is followed by a colon (:). References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to Neotropical species, and not so indicated in the title, have the symbol (S).

Papers published in ENTOMOLOGICAL NEWS are not listed.

GENERAL—Bergold, G. H.—On the nomenclature and classification of insect viruses. [Ann. N. Y. Acad. Sci.] 56: 495–516, ill. **Black, L. M.**—Viruses that reproduce in plants and insects. [Ann. N. Y. Acad. Sci.] 56: 398–413. **Chabaud, A. G. and M.-T. Choquet.**—Allométrie des variants sexuels chez les Ixodidae. [24] 89: 140–46, ill., 1952. **Chilson, L. M.**—Insect records from Johnston Island. [69] 15: 81–84. **Davis, C. J.**—New host and insect records from the Island of Hawaii. [69] 15: 85–86. **Fagel, G.**—À propos de description. . . . [136] 88: 286–88, ill., 1952. **Given, B. B.**—General report on a search for parasites of Melolonthinae in Australia. [New Zealand Jour. Sci. Tech., Ser. B] 34: 322–40, ill. **Golbach, R.**—Notas sobre algunos insectos teratológicos. [8] 10: 189–98, ill., 1952. **Janssens, E.**—Zoogéographie et convergence. (Considers Leptogastrinae and Trechinae.) [Bull. Inst. Roy. Sci. Nat. Belg.] 28, no. 51, 21 pp., ill., 1952. **Knipling, E. F.**—The greater hazard—insects or insecticides. [76] 46: 1–7. **Knudsen, J. P.**—A new method for storing papered Lepidoptera. (Freezing.) [85] 7: 27. **Krauss, N. L. H.**—Insects and other invertebrates from Palmyra Atoll and Christmas Island. [69] 15: 217–20. Notes on insects associated with Lantana in Cuba. [69] 15: 123–25. **Lees, A. D.**—Resistance and susceptibility of plants to insect attack. [Science Progress] 41: 316–20. **Nachtwey, R.**—L'instinct chez les insectes, traduit de l'allemand par Odette Amson. Hachette, Paris, 1952, 224 pp., 47 figs. (Review in [Rev. franc. d'ent.] 20: 87–88.) **Sabro-**

A Second Case of Lacebug Bite (Hemiptera: Tingidae)

Although numerous species of hemipterons have been reported to inflict bites upon human beings, most of them have been predacious forms, and only recently have the phytophagous lacebugs been added to the list. Sailer (1945, Journ. Kansas Ent. Soc., v. 18) gives a first-hand account of having been bitten repeatedly by *Corythucha cydoniae* (Fitch) at Washington, D. C.; this seems to be the only instance in the literature relating to a member of the Tingidae.

It is now possible to put on record notice of the bite of a second species of tingid, *Corythucha ciliata* (Say), the normal host of which is the sycamore tree. On June 17, 1950, while reading on the front porch of my home at Clifton Forge, Virginia, I became conscious of a slight burning sensation on the back of my left hand, not dissimilar in effect to the bite of a mosquito. Investigation revealed the presence of a specimen of *ciliata*, busily engaged in sinking its beak into my skin. Curious about the outcome, and admiring the ambition of such a tiny creature, I suffered it to proceed, unmolested. After a few minutes it withdrew its beak and, just as did the specimen of *cydoniae* in the account cited above, cast about for another likely spot to probe. Lacking Dr. Sailer's forbearance, however, I interrupted the activities and blew the lacebug away. In my case, there was no particular itching sensation—rather a burning one—and the bite was commemorated by a red spot which persisted for more than a week.

Comparatively speaking, the lacebug bite was somewhat less painful than those inflicted by the common anthocorid *Orius insidiosus*, a much smaller species. Being an entomophagous form, however, *Orius* is probably endowed with a much more potent salivary secretion.

There remains unanswered the question of what manner of spiritual or material satisfaction rewards the lacebugs from their ventures into anthropophagism.

Richard L. Hoffman

sky, C. W.—How many insects are there? [146] 2: 31–36. **Sarma, P. S.**—Easy technique of dissecting the mouth-parts of sucking-lice (Anoplura). [Current Science] 22: 47. **Schilder, F. A.**—Einführung in die Biotaxonomie (Formenkreislehre); die Entstehung der Arten durch räumlichw Sonderung. Jena, G. Fischer, 1952, 162 pp., ill. (Review by S. G. Kiriakoff [136] 88: 316, 1952.) **Steinhaus, E. A.**—Taxonomy of insect viruses. [Ann. N. Y. Acad. Sci.] 56: 517–30, ill. **Usinger, R. L., and I. La Rivers.**—The insect life of Arno Atoll, Marshall Islands. [Atoll Research Bull.] no. 15, 28 pp. **Weber, P. W.**—Recent liberations of beneficial insects in Hawaii—II. [69] 15: 127–30. **Weiss, H. B.**—Thirteen entomological pamphlets, 1655–1846. [101] 60: 221–24, 1952.

BIOGRAPHIES, OBITUARIES—Alluaud, Charles, 1861–1949.—(Biogr. with portrait and bibl.) by R. Jeannel. [137] 121: 1–22, 1952. **Blair, Kenneth Gloyne,** 1882–1952.—Obituary, with portrait, by B. M. Hobby. [142] 4: 126–27. **Doets, Cornelis,** 1894–1952.—Obituary by A. Diakonoff. [85] 7: 24. **Hoffmann, Emil.**—Biographical notice, with portrait on his 75th birthday, by H. Reisser. [Zeit. Wiener Ent. Ges.] 37: 137–38, 1952. **King, Joseph Lyonel,** 1888–1952.—(Obit. with port.) [76] 46: 189. **Schäffer, Jacob Christian,** 1718–1790.—Biography by H. B. Weiss. [101] 60: 241–44, 1952. **Talbot, George, 1882–1952.**—Obituary by C. L. Remington. [85] 7: 24. **Walton, William Randolph,** 1873–1952.—(Obit., with port.) by J. S. Wade, W. A. Baker and F. W. Poos. [56] 55: 103–08. **Weinman, Carl John,** 1915–1952.—(Obit. with port.) by H. B. Mills. [76] 46: 188.

ANATOMY, PHYSIOLOGY, MEDICAL—Chadbourne, D. S. and C. F. Rainwater.—Histological effects of calcium arsenates on larval tissues of the bollworm (Noctuidae). [76] 46: 44–48, ill. **Christensen, P. J. H.**—Embryology. (See Lepidoptera.) **Clark, E. W.**—The calcium and magnesium content in the hemolymph of certain insects. [113] 26: 101–07. **Eassa, Y. E. E.**—The development of imaginal buds in the head of Pieris brassicae Linn. [126] 103: 39–50, ill. **Gebhardt, H.**—Die Lage der wichtigsten Thermorezeptoren bei einigen Insekten. [159] 63: 558–92. **Gilbert, I. H., M. D. Couch and W. C. McDuffie.**—Development of resistance to insecticides in natural populations of house flies. [76] 46: 48–50. **Goldschmidt, R.**—Heredity within a sex-controlled structure of Drosophila. [78] 122: 53–95.

Harnish, O.—Studien zum Gaswechsel der Larva von Prodiamesa olivacea Meig. [Biol. Zentralbl.] 72: 152–61. **Holm, A.**—Experimentelle untersuchungen über die entwicklung und entwicklungsphysiologie des spinnenembryos (Araneida). [Zoologiska bidrag fran Uppsala] 29: 293–424, ill., 1952. **Hsu, W. S.**—The origin of proteid yolk. (See Diptera.) **Kennington, G. S.**—The effects of reduced atmospheric pressure on populations of Tribolium castaneum and Tribolium confusum. [113] 26: 179–203. **Lees, A. D.**—New aspects of bee behaviour. [Science Progress] 41: 313–16. **Levenbook, L.**—The variation in phosphorus compounds during metamorphosis of the blowfly, Calliphora erythrocephala Meig. [75] 41: 313–34. **Lhoste, J.**—Données histo-physiologiques sur les cellules neurosécrétrices céphaliques et le complexe rétrocérébral de Forficula auricularia L. [24] 89: 169–83, ill., 1952. **Makino, S. and K. Saito.**—Results of gonadectomy and gonadal transplantation in the sex races of Lymantria dispar. [85] 7: 7–8. **Nater, H.**—Vergleichend-morphologische Untersuchung des äusseren Geschlechtsapparates innerhalb der Gattung Drosophila. [158] 81: 437–86, 1952. **Petersen, B. and R. Weber.**—A comparison between growth ratio and geographic variation on allometry in Omocestus viridulus L. female. [Zoologiska Bidrag fran Uppsala] 29: 39–43, 1949. **Pielou, D. P. and R. F. Glasser.**—Survival of Macrocentrus ancylivorus Roh., a parasite of the Oriental fruit moth, on different concentrations of various sugar solutions. [44] 31: 121–24. **Possompès, B.**—Recherches expérimentales sur le déterminisme de la métamorphose de Calliphora erythrocephala Meig. [23] 89: 203–364, ill., 1952. **Tanada, Y.**—Viruses, microsporidea, and bacilli. (See Lepidoptera.) **Wigglesworth, V. B.**—The origin of sensory neurones in an insect Rhodnius prolixus. [116] 94: 93–112, ill.

ARACHNIDA AND MYRIOPODA—Birabén, M.—"Fernandezina," nuevo genero de Palpimanidae (Araneae). [8] 12: 545–49, ill., 1951. **Chaubaud and Choquet.**—Ixodidae. (See General.) **Fuller, H. S.**—The mite larvae of the family Trombiculidae in the Oudemans collection: taxonomy and medical importance. [Zool. Verhand., Leiden] No. 18, 261 pp., ill. 1952. **Gering, R. L.**—Structure and function of the genitalia in some American agelenid spiders. [131] 121: no. 4, 84 pp., ill. **Goodnight, C. J. and M. L.**—The opilionid fauna of Chiapas, Mexico, and adjacent areas

(Arachnoidea, Opiliones). [13] 1610, 81 pp., ill. **Greenberg, B.**—New Labidostommidae with keys to the New World species (Acarina). [101] 60: 195–204, ill., 1952. **Hoff, C. C.**—Two new species of pseudoscorpions from Illinois. [71] 45: 188–95, ill. **Holm, A.**—Araneida. (See Anatomy.) **Keifer, H. H.**—The eriophyid mites of California (Acarina: Eriophyidae). [41] 2: 1–123, ill., 1952 (k). **Krishnan, G.**—On the cuticle of the scorpion Palamneus swammerdami. [116] 94: 11–22, ill. **Manglitz, G. R. and E. N. Cory.**—Biology and control of Brevipalpus australis (Acarina: Pseudoleptidae). [76] 46: 116–19. **Mitchell, R. D.**—A new species of Lundbladia and remarks on the family Hydryphantidae (water mites). [12] 49: 159–70, ill. **Postner, M.**—Das Männchen von Parasitus americanus Berlese 1906 (Parasitidae, Acarina). [159] 150: 25–30, ill. **Schubart, O.**—Diplopoda de Pirassununga IV. Adenda à fauna regional. [48] 3: 403–20, ill., 1952. **Vachon, M.**—The biology of scorpions. [Endeavor] 12: 80–89, illus. **Wharton, G. W. and H. S. Fuller.**—A manual of the chiggers. The biology, classification, distribution, and importance to man of the larvae of the family Trombiculidae (Acarina). [Memoir, Ent. Soc. Washington] no. 4, 185 pp., illus., 1952.

SMALLER ORDERS—Barlet, J.—Ressemblances entre le thorax de Nicoletis (Thysanoure Lépismatidae) et celui d'autres apterygotes. [Bull. Inst. Roy. Sci. Nat. Belg.] 28, no. 54, 8 pp., ill., 1952. **Bianchi, F. A.**—Thysanoptera of Samoa. [69] 15: 93–108, ill. **Buchholz, K. F.**—Eine neue Antidythemis-art (Libellulinae, Odonata) mit Bemerkungen ueber das Genus Antidythemis Kirby und A. tramaeiformis Kirby. [Bull. Inst. Roy. Sci. Nat. Belg.] 28, no. 35, 11 pp., ill., 1952 (P). **Day, W. C.**—A new mayfly genus from California. [111] 29: 19–24, ill. **Demoulin, G.**—Les Behningia Lestage 1929, et leur position dans la classification des éphémères. [Bull. Inst. Roy. Sci. Nat. Belg.] 28, no. 21, 15 pp., illus., 1952. Contribution à l'étude des Ephoronidae Euthyplociinae (Ephéméroptères). [Bull. Inst. Roy. Sci. Nat. Belg.] 28, no. 45, 22 pp., ill., 1952. Essai de nouvelle clé pour la détermination des Oligoneuriidae (Ephéméroptères). [Bull. Inst. Roy. Sci. Nat. Belg.] 28, no. 43, 4 pp., 1952. Sur les affinités siphlonuridiennes du genre Metreletus Demoulin, 1938 (Éphéméroptères). [Bull. Inst. Roy. Sci. Nat. Belg.] 28, no. 31, 11 pp., ill., 1952. **Friauf, J. J.**—Dermaptera. (See Anatomy.) **Henson, H.**—On the external morphology of the neck and thorax of

Forficula auricularia L. (Dermaptera). [126] 104: 25–37, ill. **Kimmins, D. E.**—New Hawaiian Coniopterygidae (Neuroptera). [69] 15: 37–39, ill. **Lieftinck, M. A.**—The larval characters of the Protoneuridae (Odon.), with special reference to the genus Selysioneura Förster, and with notes on other Indo-Australian genera. [Treubia] 21: 641–84, ill. **Lüscher, M.**—The termite and the cell. [Scient. Amer.] 188, no. 5: 74–78, ill. **Ross, H. H. and E. W. King.**—A key to the world genera of the caddisfly tribe "Hydrobiosini" (Rhyacophilidae). [8] 12: 501–08, ill., 1951 (*k). **Tohm, G. L.**—Some Siphonaptera from Pima County, Arizona. [111] 29: 42. **Wehrle, L. P.**—A host index of some Arizona fleas (Siphonaptera). [111] 29: 37–41. **Wray, D. L.**—A new Prospinanura (Collembola) from North Carolina. [36] 48: 40–41. Two new North American Isotoma (Collembola) and key to eyeless forms. [36] 48: 54–56. **Wygodzinsky, P.**—Apuntes sobre "Thysanura" americanas. [8] 11: 435–58, ill., 1951 (*k).

ORTHOPTERA—Chopard, L.—Notes sur les orthopteroïdes de Madagascar. IV. Faune de la forêt de mousses du Tsaratanana. [72] 1: 463–516, ill., 1952. **Dresden, D. and E. D. Nijenhuis.**—On the anatomy and mechanism of motion of the mesothoracic leg of Periplaneta americana. [Proc. Neder. Akad. Wetens. Ser. C] 56: 39–47, ill. **Ergene, S.**—Homochromer Farbwechsel ohne Häutung bei Heuschrecken auf schwarzem Untergrund. [158] 81: 604–09, ill. **Fortescue-Foulkes, J.**—Seasonal breeding and migrations of the desert locust (Schistocerca gregaria Forskal) in south-western Asia. [Antilocust Memoir] 5, 36 pp., ill. **Friauf, J. J.**—An ecological study of the Dermaptera and Orthoptera of the Welaka area in northern Florida. [49] 23: 79–126, ill. **Hutchins, R. E. and J. M. Langston.**—An unusual occurrence of the field cricket. [76] 46: 169. **Key, K. H. L.**—A provisional check-list of the Acridoidea of Tasmania. [Papers & Proc. Royal Soc. Tasmania] 86: 127–30, 1952. **Lhoste, J.**—(See Anatomy.) **Petersen and Weber.**—(See Anatomy.) **Pirán, A. A.**—El alotipa macro de Parudenus falklandicus Enderlein, 1909 (Rhaphidophoridae). [8] 10: 283–84, 1952. **Rehn, J. A. G.**—On two interesting phasmids from coastal Peru. [9] 79: 1–11, ill. **Tuzet, O. and M. Zuber-Vogeli.**—La spermatogenèse de Zonocerus variegatus L. (Acridoidea, Pyrgomorphidae). [Bull. Inst. Franc. d'Afrique noire] 15: 487–94, ill.

HEMIPTERA—Adachi, M. S. and D. T. Fullaway.—Two new diaspidid scales on Acaucaria. [69] 15: 87–91, ill.

Barber, H. G.—The genus Pachybrachus in the United States and Canada with the description of two new species (Lygaeidae). [101] 60: 211–20, 1952 (k). A new subfamily, genus, and species belonging to the family Enicocephalidae. [13] 1614, 4 pp. **Bray, D. F.**—Life history and control of Cinara winonkae (Aphididae). [76] 46: 103–07. **Cachan, P.**—Les Pentatomidae de Madagascar. [72] 1: 231–462, ill., 1952. **Chuchuy, M. E.**—Un insecto perjudicial del malvón Sibovia sagata (Sign.) (Jassidae). [8] 10: 99–104, ill., 1952. **Drake, C. J.**—American species of Ranatra annulipes Stål group. [152] 43: 109–17, ill. (*). The genus Parada Horvath (Tingidae). [115] 59: 143–47, 1952. **Dumbleton, L. J.**—A note on Aleuroplatus (Ochramus) samoanus Laing (Aleyrodidae). [69] 15: 21–23, ill. **Essig, E. O.**—Aphid miscellany. [111] 29: 1–13. The orchard grass aphid, Hyalopteroides humilis (Walker). [111] 29: 17–18. **Frost, S. W.**—Miridae from light traps. [101] 60: 237–40, 1952. **Hottes, F. C.**—Seasonal variations in Myzocallis californicus Baker (Aphididae). [111] 29: 43–46, ill. **Hussey, R. F.**—Concerning some North American Coreidae. [36] 48: 29–34 (k). **Lallemand, V. and H. Synave.**—Contribution à l'étude des homoptères. II. Détermination d'homoptères de l'Institut royal des sciences naturelles de Belgique. [Bull. Inst. Roy. Sci. Nat. Belg.] 28, no. 29, 1952 (S). **Leston, D.**—A note on oligomery in Lygaeidae. [Ent. Gazette] 4: 133–34, ill. **Martin, B. A.**—Temporary elimination of the autosomes from the meiotis spindle in a halyinid pentatomid. [79] 92: 207–40, ill. **Ross, H. T.**—Another European cherry leafhopper in North America. [76] 46: 177, ill. **Wigglesworth, V. B.**—The origin of sensory neurones in an insect Rhodnius prolixus. [116] 94: 93–112, ill. **Wygodzinsky, P.**—Sobre algunos Cryptostemmatidae, principalmente de la Argentina. [8] 10: 51–74, ill., 1952.

LEPIDOPTERA—Avinoff, A. and W. R. Sweadner.—The Karanasa butterflies, a study in evolution. (Annals Carnegie Museum, v. 32, art. 1, 250 pp., 17 pls., 1951.) (Review by E. G. Munroe [85] 7: 16–23.) **Beebe, R.**—Sampling Michigan Lepidoptera by the fixed light trap. [85] 7: 28. **Bourquin, F.**—Cuatro notas sobre metamorfosis de microlepitopteros (Aristotelia perplexa, Parastega hemisigna, Porphyrosela sp., Darlia praetexta). [8] 12: 509–18, ill., 1951. Metamorfosis de "Amastus prosenii" Köhler 1949 (Arctiidae). [8] 12: 527–32, ill., 1951. Metamorfosis de "Megalopyge lanceolata" Dogn. 1923 (Megalo-

pygidae). [8] 12: 533–38, ill., 1951. Notas sobre la metamorfosis de "Antispastis clarkei" Pastrana 1951 (Glyphipterygidae). [8] 12: 523–26, ill., 1951. **Bradley, J. D.**—New microlepidoptera from Fiji. [69] 15: 109–14, ill. **Chadbourne and Rainwater.**—(See Anatomy.) **Christensen, P. J. H.**—The embryonic development of Cochlidion limacodes Hufn. (Fam. Cochlididae); a study on living dated eggs. [Biol. skr. Danske Vidensk. Selskab] 6: no. 9, 46 pp., ill. **Clarke, J. F. G.**—The moths of the genus "Coptotelia" Zeller (Oecophoridae). [8] 11: 335–52, ill., 1951 (*). **Diakonoff, A.**—Microlepidoptera of New Guinea; results of the Third Archbold Expedition, 1938–39. [Verh. K. Neder. Akad. Weten. Afd. Naturk.] 2d ser. 49: no. 1, 167 pp., ill., 1952. **Eassa, Y. E. E.**—(See Anatomy.) **Fender, K. M. and J. H. Baker.**—Notes on the migration of Nymphalis californica. [85] 7: 15. **Fraisse, R.**—La croissance de la tête chez la larve du Bombyx mori L. en fonction du régime alimentaire. [2] 236: 1613–14. **Franz, E.**—Sphingidae aus El Salvador. [Senckenbergiana] 33: 253–55, 1952. **Fulton, M.**—Migration of the monarch butterfly through Chicago. [85] 7: 28. **Gray, P. H. H.**—A note on the colors of pupae of Pieris rapae developed under artificial conditions. [85] 7: 5–6. **Hayward, K. J.**—Clave para los géneros y especies argentinos de la familia Nymphalidae. [8] 10: 401–21, 1952. Una clave para les subfamilias, géneros y especies argentinos de la familia Heliconiidae. [8] 10: 311–13, 1952. Guia para le clasification de las especies y formas argentinas de la familia "Papilionidae." [8] 12: 279–330, ill., 1951. Más notas sobre ninfálidos Argentinos (Nymphalidae). [8] 10: 285–90, 1952. **Kiriakoff, S. G.**—De gehoororganen en de systematick der Lepidoptera. [57] 14: 246–50, ill. **Knowlton, G. F.**—Observations of Celerio lineata, the white-lined sphinx, in Utah. [85] 7: 11–12. **Knudsen, J. P.**—(See General.) **Köhler, P.**—Las Noctuidae argentinas, subfamilia "Cucullianae." [8] 12: 135–82, 1951. **Komai, T.**—Composition of wild populations in the lycaenid butterfly Neozephyrus taxila. [15] 87: 87–95, ill. **Kusnezov, N.**—Atticonviva Busck en la Argentina (Tineidae). [8] 10: 281–82, 1952. **Makino and Saito.**—(See Anatomy.) **Mather, B.**—A migration of Ascia monuste in Mississippi. [85] 7: 13–14. **Pastrana, J. A.**—Una especie nueva de "Glyphipterygidae" de la Argentina. [8] 12: 519–22, ill., 1951. **Phinhey, E. C. G.**—Butterflies of Rhodesia. Salisbury, Rhodesia Scientific Association, 1949. 208 pp., illus., pls. (Review by R. W. Macy [85]

7: 25.) **Rawson, G. W. and P. F. Bellinger.**—Sparrows feeding on congregating Papilio. [85] 7: 27. **Remington, C. L.**—The biology of nearctic Lepidoptera. II. Foodplant and pupa of Hemiargus isolus (Lycaenidae). [115] 59: 129–30, 1952. **Swezey, O. H.**—A new species of leafminer in Straussia (Gelechiidae). [69] 15: 23. **Tanada, Y.**—Description and characteristics of a granulosis virus of the imported cabbageworm. [69] 15: 235–60, ill. A microsporidian parasite of the imported cabbageworm in Hawaii. [69] 15: 167–75, ill. Susceptibility of the imported cabbageworm to Bacillus thuringiensis Berliner. [69] 15: 159–66. **Temple, V.**—Some notes on the courtship of butterflies in Britain. [Ent. Gazette] 4: 141–61, ill. **Van der Kloot, W. G. and C. M. Williams.**—Cocoon construction by the Cecropia silkworm. I. The role of the external environment. [Behaviour, Leiden] 5: 141–56, ill. **Whittaker, R. H.**—Notes on a migration of Nymphalis californica. [85] 7: 9–10.

DIPTERA—Aczél, M. L.—Catalogo de la subfamilia anericana "Pterocallinae" (Otitidae). [8] 11: 397–433, 1951. Further revision of the genus Xanthaciura Hendel (Trypetidae). [8] 10: 245–80, ill., 1952 (*k). Generos y species neotropicales de la tribus "Trypetini." II. Dos generos y una especie nuevos. [8] 12: 253–78, ill., 1951. Morfologia externa y division sistematica de las "Tanypeziformes" con sinopsis de las especies argentinas de "Tylidae" (Micropezidae) y "Neriidae." [8] 11: 483–589, ill., 1951. Revisión parcial del género americano Paracantha Coquillett (Trypetidae). [8] 10: 199–44, ill., 1952 (*). Suplemento al "catalogo de la familia Trypetidae de la region neotropical." [8] 12: 117–33, 1951. **Adachi, M. S.**—Preliminary studies in Hawaiian Dolichopodidae. Part I. New species of Campsicnemus Haliday. [69] 15: 117–22, ill. **Aguilar, J. d', J.-M. Legay and C. Vago.**—Parasitisme de Ctenophoracera pavida Meig. sur Bombyx mori L. (Larvaevoridae). [138] 58: 23–25. **Alexander, C. P.**—New or little-known Tipuloidea from Argentina. Pt. 1. [8] 10: 75–94, ill., 1952. Notes on the Tipulidae of Ecuador. [Revista Ecuatoriana de Ent. y Parasit.] 1: 5–13. Records and descriptions of neotropical crane-flies (Tipulidae), XXVI. [101] 60: 245–54, 1952. Undescribed species of nematocerous Diptera. Pt. II. [36] 48: 41–49. **Bess, H. A.**—Status of Ceratitis capitata in Hawaii following the introduction of Dacus dorsalis and its parasites. [69] 15: 221–34. **Bezem, J. J. and F. H. Sobels.**—Penetrance and

expressibility in the genotype abnormal abdomen of Drosophila melanogaster. [Proc. Neder. Akad. Wetens. Ser. C] 56: 48–61. **Blanton, F. S.**—The results of several years collecting parasitic flies (Tachinidae). [101] 60: 225–35, 1952. **Boyes, J. W. and A. Wilkes.**—Somatic chromosomes of higher Diptera. I. Differentiation of tachinid parasites. [44] 31: 125–65, ill. **Brundin, L.**—Zur Kenntnis der Taxonomie und Metamorphose der Chironomidengattungen Protanypus Kieff., Prodiamesa Kieff. und Monodiamesa Kieff. [Rept. Institute of Freshwater Research, Drottningholm] 33: 39–53, ill., 1952. **Burton, G. J.**—Some techniques for mounting mosquito eggs, larvae, pupae and adults on slides. [92] 13: 7–15. **Dietz, R. A.**—Field notes on Neorhynchocephalus sackenni (Williston) in Missouri (Nemestrinidae). [36] 48: 38–39. **Dodd, A. P.**—Observations on the stem gall fly (Procecidochares utilus Stone) of Pamakani, Eupatorium glandulosum. [69] 15: 41–44. **Dodge, H. R.**—Two sarcophagid flies new to Hawaii. [69] 15: 131–34, ill. **Dupuis, C.**—Contributions à l'étude des Phasiinae cimicophages (Larvaevoridae). XV. Données sur les Leucostomatina et, en particulier, Leucostoma analis (Meigen) s. str. [17] 28: 64–97, ill. **Fairchild, G. B.**—A note on Hertigia hertigi Fairchild and description of the female (Psychodidae). [56] 55: 101–02, ill. **Farr, T. H.**—A note on the swarming habits of Ogcodes dispar (Macq.) (Cyrtidae). [36] 48: 39–40. **Fleschner, C. A. and D. W. Ricker.**—An empidid fly predaceous on citrus red mites. [76] 46: 155. **Fluke, C. L.**—The genus "Dolichogyna" (Syrphidae). [8] 12: 465–78, ill., 1951 (*). **Foote, R. H.**—The pupal morphology and chaetotaxy of the Culex subgenera Melanoconion and Mochlostryax. [56] 55: 89–100. **Frick, K. E.**—Further studies on Hawaiian Agromyzidae, with descriptions of four new species. [69] 15: 207–15 (k). **Frohne, W. C.**—Another snipe fly pest in Alaska. [92] 13: 25. A factor influencing male mosquito and midge swarms. [92] 13: 27. **Gilbert, Couch and McDuffie.**—(See Anatomy.) **Hardy, D. E.**—The Argentine "Biblionidae." [8] 12: 343–76, ill., 1951 (*k). New Hawaiian Tipulidae. [69] 15: 55–58, ill. Notes on the Shannon types of Dorilaidae from Argentina (Pipunculidae). [8] 10: 299–306, ill., 1952. Studies in Hawaiian Dorilaidae. Pt. I. [69] 15: 59–73, ill. **Hardy, G. H.**—The evolution of antennae in the Diptera. [60] 89: 79–80. **Hemmingsen, A. M.**—The oviposition of some crane-fly species (Tipulidae) from different types of localities. [Videnskab. Medd., Dansk Naturhist. Foren.]

114: 365–430, ill., 1952. **Hsu, W. S.**—The origin of proteid yolk in Drosophila melanogaster. [116] 94: 23–28, ill. **James, M. T.**—The Stratiomyidae of Bimini, British West Indies. [13] 1613, 6 pp. (*). **Janssens, E.**—Méthodes de chasse de Neoitamus cyanurus (Asilidae). [136] 88: 289–90, ill., 1952. Revision du genre Lasiocnemus Loew (Asilidae). [Bull. Inst. Roy. Sci. Nat. Belg.] 28, no. 24, ill., 1952. **Khalaf, K. T.**—Culicoides spinosus in Oklahoma (Heleidae). [111] 29: 46–47. **Lane, J.**—Neotropical Mycetophila. [48] 3: 421–34, ill., 1952 (*k). **Leclercq, M.**—Introduction à l'étude des tabanides et revision des espèces de Belgique. Pt. I, Biologie et importance parasitologique des tabanides dans le monde. [Mém. Institut Roy. Sci. Nat. de Belg.] 123, 80 pp., ill., 1952. **Leví-Castillo, R.**—Dos especies nuevas de mosquitos ecuatorianos (Culicidae). [Revista Ecuatoriana de Ent. y Parasit.] 1: 14–17, ill. Lista provisional y distribución de los mosquitos Culicinos en el Ecuador. [Revista Ecuatoriana Ent. y Parasit.] 1: 34–45. A note on the systematic status of the genus Haemagogus, Williston 1896 (Culicidae). [Revista Ecuatoriana de Ent. y Parasit.] 1: 19–25. **Lindner, E.**—Die Fliegen der palaearktischen Region, Lief. 170 (15. Tipulidae, pp. 65–112, ill., 1952), Lief. 171 (33. Phoridae, pp. 273–320, ill., 1952), Lief. 172 (64g. Larvaevorinae (Tachininae), pp. 257–304, ill., 1953). **Maeda, S., K. S. Hagen and G. L. Finney.**—Artificial media and the control of microorganisms in the culture of tephritid larvae (Tephritidae). [69] 15: 177–85. **Martin, C. H.**—Intraspecific variation of taxonomic characters in Coleomyia and two new species (Asilidae). [111] 29: 25–34 (k). **Nater, H.**—Vergleichend-morphologische Untersuchung des äusseren Geschlechtsapparates innerhalb der Gattung Drosophila. [158] 81: 437–86, ill. **Possompès, B.**—(See Anatomy.) **Pritchard, A. E.**—The gall midges of California, Itonididae (Cecidomyiidae). [41] 2: 125–50, ill. (k). **Reinhard, H. J.**—New muscoid Diptera from the western United States. [111] 29: 49–59. **Ryckman, R. E.**—Diptera reared from barn owl nests. [111] 29: 60. **and C. T. Ames.**—Adoxomyia claripennis collected from wood rat nests in Arizona (Stratiomyidae). [111] 29: 60. **Sabrosky, C. W.**—A new North American species of Metopia (Sarcophagidae). [36] 48: 50–53 (k). **Schuurmans Stekhoven, J. H., Jr.**—Algunas especies del genero "Basilia" Ribeiro y creacion del nuevo genero "Guimaraesia" (Nycteribiidae). [8] 12: 101–15, ill., 1951. Nuevos hechos relacionados con "Guimaresia romanai" (Del Ponte) (Nycteri-

biidae). [8] 12: 551–61, ill., 1951. Un representante raro del grupo de los dípteros pupíparos. Una especie del género Ascodipteron, parásito de Miniopterus schreibersi Kuhl. [8] 10: 479–87, ill., 1952. **Shaw, F. R.**—A review of some of the more important contributions to our knowledge of the systematic relationships of the Sciaridae. [69] 15: 25–32, ill. **Summers, T. E. and E. W. Stafford.**—Diabrotica undecimpunctata howardi parasitized by Celatoria diabroticae (Tachinidae). [76] 46: 180. **Thompson, G. A.**—Observations of early spring activity of Culiseta inornata (Williston) (Culicidae) in south central Nebraska. [92] 13: 17. **Townsend, J. I.**—To obtain Drosophila willistoni from the Greater Antilles in order to compare the chrosomal polymorphism with that reported from other neotropical areas. (Report on Grant.) [Yearbook, Amer. Phil. Soc.] 1952: 167–68. **Van den Bosch and Haramoto.**—(See Hymenoptera). **Vergani, A. R.**—La mosca del Mediterraneo, Ceratitis capitata (Wied.). [Argentina Min. Agr. Ganad. Serie B] 8: no. 22, 17 pp., ill., 1952. **Wallis, R. C.**—A technique for micromanipulation of mosquitoes. [92] 13: 15–16, ill.

COLEOPTERA—Arnett, R. H.—Beetles of the oedemerid genus Vasaces Champion. [151] 103: 87–94, ill. (*). **Ayyappa and Cheema.**—(See Hymenoptera.) **Bechyné, J.**—Deuxième note sur les eumolpides néotropicaux des collections de l'Institut royal des sciences naturelles de Belgique. [Bull. Inst. Roy. Sci. Nat. Belg.] 28, no. 38, 20 pp., ill., 1952. **Blake, D. H.**—Two new species of Glyptoscelis (Chrysomelidae) from Argentina. [8] 10: 163–66, ill., 1952. **Bosq, J. M.**—Descripción de una nueva especie del género Centrocerum Chevr., 1861 (Cerambycidae). [8] 10: 95–97, 1952. **Darlington, P. J., Jr.**—A new Bembidion (Carabidae) of zoogeographic interest from the southwest Pacific. [47] 7: 12–16. **Duffy, E. A. J.**—The immature stages of Hawaiian Cerambycidae, with a key to larvae. [69] 15: 135–58, ill. **Emden, F. I. van.**—The larva of Morion and its systematic position (Carabidae). [69] 15: 51–54, ill. **Fisher, W. S.**—New cerambycid beetles belonging to the tribe Rhinotragini. [111] 29: 14–17. **Gardiner, P.**—The morphology and biology of Ernobius mollis L. (Anobiidae). [126] 104: 1–24, ill. **Gilbert, E. E.**—Sexual dimorphism and synonymy in Anthonomus (Anthonomorphus) (Curculionidae). [111] 29: 41. **Given, B. B.**—(See General.) **Gressitt, J. L.**—The genus Glaucytes in the Pacific (Cerambycidae). [69] 15: 195–99, ill. (k). Longicorn beetles of China. [Longicornia, ed. by P. Lepesme] 2, 667 pp., ill., 1951.

Guérin, J.—Description de quatre nouvelles espèces de Megalopodidae de la "Zoologische sammlung des Bayerischen Staates," München. [48] 3: 435–42, ill., 1952 (*S). **Helfer, J. R.**—Two new Hippomelas (Buprestidae). [111] 29: 34–36. **Janssens, E.**—(See General.) **Jolivet, P.**—Notes biométriques sur quelques Chrysomeloidea. [Bull. Inst. Roy. Sci. Nat. Belg.] 28, no. 44, 8 pp., 1952. **Kennington, G. S.**—(See Anatomy.) **Knowlton, G. F.**—Dynastes Granti Horn in Utah (Scarabaeidae). [36] 48: 49. **Lane, M. C.**—Some generic corrections in the Elateridae, IV. [56] 55: 86–89. **McDermott, F. A.**—Further data regarding Jamaican Lampyridae, in extension of the work of Dr. John B. Buck. [Yearbook, Amer. Phil. Soc.] 1952: 165–67. **Monrós, F.**—Notas sobre Criocerinae (Chrysomelidae). [8] 11: 467–82, ill., 1951 (*). Revisión de las especies argentinas de Chlamisinae (Chrysomelidae). [8] 10: 489–672, ill., 1952 (*k). Seis nuevas especies de Criocerine del noroeste Argentino (Chrysomelidae). [8] 10: 33–49, ill., 1952. **and M. J. Viana.**—Las Cassidinae de la seccion "Hemisphaerotina" con revision de las especies argentinas. [8] 11: 367–95, ill., 1951 (*k). **Papp, C. S.**—Neubeschreibungen über einige chrysomeliden aus Südamerika. [8] 10: 291–98, ill., 1952 (k). **Park, O.**—A new genus of pselaphid beetles from the Everglades. [97] 121, 4 pp., ill. **Schedl, K. E.**—Fauna Argentinensis V. Contribution to the morphology and taxonomy of the Scolytoidea. [8] 12: 443–63, 1951 (*). Scolytoidea nouveaux du Congo Belge. [Annal. Musée Roy. Congo Belge, Série in 8°, Sci. Zool.] 13, 62 pp., ill., 1952. **Selander, R. B.**—A new species of Calospasta from Utah (Meloidae). [111] 29: 47–48. **Summers and Stafford.**—(See Diptera.) **Théodoridès, J.**—Les coléoptères fossiles. [137] 121: 23–48, ill., 1952. **Tilden, J. W.**—Observations on the biology of Psoa maculata Leconte (Psoidae). [47] 7: 9–12. **Uhmann, Erich.**—"Hispinae" von Brasilien und Argentinien (Chrysomelidae). [8] 12: 331–41, ill., 1951 (*). **Van den Bosch, R.**—(See Hymenoptera.) **Vaurie, P.**—The Gregorio Bondar types of South American weevils (Curculionidae). [13] 1615, 39 pp.

HYMENOPTERA—Ayyappa, P. K. and P. S. Cheema.—An ectoparasite (Bethylidae) on the larvae of Anthrenus vorax Waterhouse. [Proc. Indian Acad. Sci. Sect. B] 36: 215–22, ill., 1952. **Bohart, G. E. and G. F. Knowlton.**—Notes on mating, prey provisioning and nesting of Sphex procerus (Dahlbom), Sphecidae. [56] 55: 100–01. **Cole, A. C., Jr.**—To collect and make taxonomic and ecologic

studies of the ants of New Mexico. (Report on Grant.) [Yearbook, Amer. Phil. Soc.] 1952: 153. **Creighton, W. S.** —New data on the habits of the ants of the genus Veromessor (Formicidae). [13] 1612, 18 pp. Pseudomyrmex apache, a new species from the southwestern United States (Formicidae). [115] 59: 131–42, ill., 1952. Studies on Arizona ants (4) Camponotus (Colobopsis) papago, a new species from southern Arizona. [115] 59: 148–62, ill., 1952. **Fullaway, D. T.**—Three new species of Eurytoma. [69] 15: 33–36. **Gaul, A. T.**—Additions to vespine biology. XI, Defense flight. [36] 48: 35–37. **Hagen, K. S.**—A premating period in certain species of the genus Opius (Braconidae). [69] 15: 115–16. **Hutchins, R. E.**—The amazing fungus ants. [Nature Magazine] 46: 245–46, ill. **Jackson, W. B.** —Microclimatic factors in army ant behavior and ecology. [Amer. Phil. Soc. Yearbook] 1952: 157–61. **Krombein, K. V.**—A note on the nesting habits of Megachile texana Cresson. [56] 55: 84–85. **Kusnezov, N.**—Acerca de las hormigas simbióticas del género Martia Forel (Formicidae). [8] 10: 717–22, 1952 (*). Die ameisenfauna Argentiniens (Formicidae). [159] 150: 15–25. Un caso de ergatandromorfismo en Lasiophanes nigriventris Spin. (Formicidae). [8] 10: 153–62, ill., 1952. "Descolemyrma ogloblini" genero y especie nuevos de la tribu "Attini" (Formicidae). [8] 11: 459–65, ill., 1951. El estado real del grupo Dorymyrmex Mayr (Formicidae). [8] 10: 427–47, ill., 1952. El genero "Camponotus" en la Argentina (Formicidae). [8] 12: 183–252, ill., 1951. El género Oligomyrmex Mayr en la Argentina (Formicidae). [8] 10: 183–87, ill., 1952. El genero "Pheidole" en la Argentina (Formicidae). [8] 12: 5–88, 1951 (k). El genero "Poponomyrmex" Mayr (Formicidae). [8] 11: 227–333, ill., 1951 (*k). El género Wasmannia en la Argentina (Formicidae). [8] 10: 173–82, ill., 1952 (*). "Lasiophanes" Emery en la Patagonia (Formicidae). [8] 12: 89–100, 1951. "Myrmelachista" en la Patagonia (Formicidae). [8] 11: 353–65, ill., 1951 (*). **and R. Golbach.** —Lista de las especies argentinas de la tribus Dacetini, Formicidae. [8] 10: 423–26, 1952. **Laidlaw, Harry H.**— An anesthetization chamber for the artificial insemination of queen bees. [76] 46: 167–68, ill. **Lees, A. D.**—(See Anatomy.) **Maa, T.**—An inquiry into the systematics of the tribus Apidini or honeybees. [Treubia] 21: 525–40, ill. **Pielou and Glasser.**—(See Anatomy.) **Riegel, G. T.**—Neotropical exodont Braconidae. [71] 45: 177–81. **Risbec, J.** —Contribution à l'étude des chalcidoïdes de Madagascar.

[72] 2: 1–449, ill., 1952. **Smith, M. R.**—A revision of the genus Romblonella W. M. Wheeler (Formicidae). [69] 15: 75–80, ill. **Van den Bosch, R.**—Bathyplectes curculionis (Ichneumonidae) as a parasite of Hypera brunneipennis (Curculionidae). [76] 46: 161–62. **and F. H. Haramoto.** —Competition among parasites of the oriental fruit fly. [69] 15: 201–06. **Van Pelt, A.**—Notes on the above-ground activity and a mating flight of Pogonomyrmex badius (Latr.). [147] 28: 164–68. **Wheeler, G. C. and J. Wheeler.** —The ant larvae of the myrmicine tribe Pheidolini. [56] 55: 49–84, ill. **Willink, A.**—Las especies argentinas y chilenas de "Chlorionini" (Sphecidae). [8] 11: 53–225, ill., 1951 (*k). Sphecidos neotropicales. I. [8] 10: 167–71, 1952. Los véspidos sociales argentinos, con exclusión del género Mischocyttarus (Vespidae). [8] 10: 105–51, ill., 1952 (k). **Zikan, J. F.**—Polymorphismus und Ethologie der sozialen Faltenwespen (Vespidae Diploptera). [8] 11: 5–51, ill., 1951.

Reviews

APHIDS OF THE ROCKY MOUNTAIN REGION. By Miriam A. Palmer. Vol. V. Thomas Say Foundation. For sale by Professor J. J. Davis, Department of Entomology, Purdue University, Lafayette, Indiana. Price: $10.25 post paid in U. S. A., $10.50 elsewhere.

Entomologists will be pleased to learn of the publication of volume five, by the Thomas Say Foundation. This volume of four hundred fifty-two pages is by Miriam A. Palmer, who was for many years associated with C. P. Gillette, and is titled "Aphids of the Rocky Mountain Region." This work, the largest thus far published on aphids in America, brings together descriptions, illustrations, and biological notes on about 460 aphid species known to occur in Colorado, Utah, southern Wyoming, southeastern Idaho, and northern New Mexico. Many of the species are keyed for the first time, and many have never been figured before. The work is especially noteworthy because it brings together the many species described from Utah by G. F. Knowlton. Several new species are described and one or two new names are proposed. The plan of classification followed is largely that of A. C. Baker, and is conservative as to genera and species. Following a brief introduction, the family is characterized and divided into subfamilies. The subfamilies

are characterized, keyed to tribes and subtribes, these are in turn characterized and keyed. Genera are characterized, and keyed to species. Individual species are treated after a rather fixed pattern: all known forms are described and essential characteristics illustrated by excellent line drawings which are grouped to make four hundred fifty-four figures, distribution is indicated within the area, and essentials of life history recorded. The section on taxonomy of species is followed by eight colored plates. Following the colored plates there comes a section which should appeal to many entomologists; it is a key to species infesting economic plants grouped under their respective hosts. These keys are brief because they involve few species and for the most part employ common, well known, easily recognized characters. Here one finds keys to such species that live on apple, aster, birch, blue spruce, currants, plum, rose and many other garden and field crops. There is a host plant index, list of literature, gazetteer, and an index to scientific names.

Probably in deference to American economic entomologists a few well known, well established names for species are retained which are known to be synonyms. In one or two cases perhaps this is well because taxonomists in Europe do not agree as to which specific name should be used. It might, however, have been well to indicate such cases. In a work as extensive as this, it is natural that taxonomists would find points here and there to quibble over, or on which they hold honest differences of opinion concerning generic concepts, the interpretation of rules of nomenclature, and the use of specific names. These differences of opinion will vary from person to person, and need not concern the general user of this book.

The work is not a revision. It is to be regretted that it does not cover the entire United States, or that it does not include the species described from the Pacific Coast unless they occur within the region. However, it is by no means as limited in its scope as its title indicates. It includes most economic species found in the United States. The addition of approximately a hundred species from the United States and Canada would make it practically complete.

The book is excellently printed by the off-set process and well and strongly bound.

For this reviewer, who more than thirty years ago received instruction and infectious enthusiasm for the study of aphids from Professor Palmer, it is a pleasure to recommend this book.

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PLANT DISEASES IN ORCHARD, NURSERY AND GARDEN CROPS. By Ernst Gram and Anna Weber, edited and adapted by R. W. G. Dennis. 618 pp., 350 text figs., 10 colored plates. Philosophical Library Inc., New York, 1953. $18.50.

This elegantly printed volume has had an interesting history and one pertinent to an understanding of its scope. Work on it was begun by the authors in 1933, but the first edition was not published until 1940, in Copenhagen, at a time when Denmark was under blockade and when it was necessary that a country in such a situation be agriculturally self-supporting. The book was so helpful that a second Danish edition was issued in 1944. The present English language edition, based on this second edition, was translated by Evelyn Ramsden and edited and abridged by Dr. Dennis of the Royal Botanic Gardens, Kew.

Intended primarily as a general work for the cultivator, and seemingly popular in parts of Europe, it contains considerable technical information and more than a scattering of scientific terms. Although written in quite lucid English, a professional worker does not feel he is reading a text that has been watered-down for the amateur. Reader interest is often added by a brief history of the development of our knowledge of a disease as well as its early methods of control. Textual references are freely made to authors and a reasonable bibliography is appended.

As one would suppose by the title the contents deals with the diseases of orchard, nursery and garden crops, those of the grain crops being omitted. However, the general scope is wider than the title would seem to indicate. The first section deals with "The nature of plant disease" and includes such things as environmental factors (even damage by lightning), an excellent treatment of mineral deficiencies, poisoning by chemical substances such as coal gas, damage by sprays, as well as a general discussion of various of the aspects of fungus, bacterial and virus disease conditions.

The next three sections, "Diseases of Tree and Bush Fruit," "Diseases of Vegetables and Herbaceous Fruit," and "Diseases of Ornamental Plants and Trees" form the bulk of the text. Here the plants are listed alphabetically under their English common names, with the diseases also listed alphabetically under each, again under their English common names. The name of the causal organism (or initiating condition) is given and the disease discussed, often at considerable length under the subheadings of Symptoms, Cause and Control. Secondary invasions also are considered.

For use in America general effectiveness of the present work will be lessened by several factors. As one would expect, it stresses diseases and conditions prevalent in Denmark. This has been further modified by the last editing which pointed the text toward conditions in England. This does not mean that diseases not present in northwestern Europe but serious elsewhere are not included; however, the lack of emphasis of these is certain to be noted. Yet it is to be admitted that only a few serious plant diseases of temperate regions are today confined to any one area; therefore in general the present text has wide application in America. Perhaps the greatest factor hindering the effectiveness of the book is the presence of varietal names mostly unknown to us, especially in the otherwise excellent tables of susceptibility to diseases and spray injury. In some instances the names of widespread varieties have suffered a "sea change" upon introduction into this country; in the majority of cases, especially among the fruits, we just do not grow the sorts commonly planted in England and Denmark. This same situation holds for the names of the proprietary therapeutic products on occasion noted as being effective in the control of some particular disease; although we may be using the same basic compounds, we do not know them under the same trade names. The four pages on British quarantine regulations and advisory services in the present edition are, of course, only of academic interest to the American reader. Furthermore, the recent expansion of plant disease control measures in America is only touched upon in the text, probably the result of the necessary time lag in production of the present edition. In fact today no book published on this side of the Atlantic can be said to be really up-to-date, so rapid is our production of new therapeutic compounds.

On the whole, however, the entomologist desiring to have at hand a readable treatise on the diseases of a wide range of useful plants will find this work of considerable help. One of the major points of interest will be the "keys" to symptoms under each of the major crop plants. For example, the one on potatoes covers nearly five pages. With an ailing plant at hand one without technical training usually can rather easily run down through the key and determine the cause by the appearance of the specimen, this applying to single element deficiencies (or excesses) and cultural troubles, as well as pathological conditions caused by disease-producing organisms. Fortunately the authors have "keyed-out" the same condition in several places according to its variant symptoms as exhibited under different

cultural situations, at different times in the plant's development, as well as in different parts of the plant. These keys also list the page where the condition is discussed at length, either under a particular plant or under some general topic. The illustrations, although not always of the best quality, serve to amplify the discussion and description of symptoms and causal organisms. Altogether, this is a useful and helpful work which should be on the shelves of those economic entomologists who, from time to time, need to ascertain the cause of some pathological condition not directly attributable to insect damage.

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INSECT PHYSIOLOGY. Edited by Kenneth D. Roeder. (By R. L. Beard, D. Bodenstein, J. B. Buck, L. E. Chadwick, M. F. Day, V. G. Dethier, G. A. Edwards, D. Gilmour, S. C. Munson, R. L. Patton, A. G. Richards, K. D. Roeder, T. C. Schneirla, W. Trager, and D. F. Waterhouse.) xiv + 1100 pp., 257 figs. John Wiley and Sons, New York, Feb., 1953. Price, $15.00.

This is the first American book on the physiology of insects. True, Snodgrass, in his "Principles of Insect Morphology" (1935), included a good deal of information on the functioning of the various organs that was up-to-date for its time, but the emphasis was morphological. For many years entomologists were concerned mainly with taxonomic, distributional, morphological, life-history, and ecological studies, and with economic entomology. Thus, in spite of the many entomologists in Universities and other institutions, physiology was neglected, and it is only in fairly recent years that we have been hearing more and more of "insect physiologists."

It was the appearance of Wigglesworth's "Principles of Insect Physiology" in 1939 that brought to general notice the fact that a science of insect physiology had surely if quietly been coming into existence, and ever since then that book has accelerated the growth of the science by attracting and guiding new workers in the field. This new book, edited by Roeder, will be valuable in the same way. Compared with Wigglesworth's (1950 edition), the present volume, with 1100 pages, is slightly more than half again as large; Wigglesworth has only 544 pages but has

60% more words per page. The British book provides a better general introduction to the field, with a more complete and uniform coverage of the subject. Roeder contains much detailed information not found in Wigglesworth, especially in the chapters on metabolism, on insect behavior, and in other places.

The authors, each responsible for one or more chapters, are American workers except for the three Australians, M. F. Day, D. Gilmour, and D. F. Waterhouse. The editor acknowledges also the assistance of C. L. Prosser, F. J. Yeager, and C. M. Williams, and names 16 others that helped with individual chapters. Such multiple authorship has its disadvantages as well as advantages. There are some gaps as well as some overlapping in the chapters (and it is important to use the index in order to locate all information on certain subjects), and there are differences in point of view, in the treatment, and in style depending upon the personality of the authors. On the other hand, each subject is presented by a scientist active in the particular field and the information is authoritative and often detailed, especially as regards the most recent developments.

In the text, ideas and facts are credited to the original authors, with the date, so that one may refer to the bibliography at the end of the book; and following each title in the bibliography there are page numbers that refer to the text. This book will be extremely useful to every serious student of entomology, to every teacher, and to the research worker who must have access to information and literature giving the present state of knowledge in the many branches of insect physiology.

R. G. SCHMIEDER

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

American Sarcophagidae—wanted for identification. H. R. Dodge, P.O. Box 185, Chamblee, Georgia.

German lepidopterist wishes to correspond and receive live material (eggs and pupae) in exchange for dried imagoes. Johannes Reichel. Koenigsberg, Krs. Wetzlar 16, Germany.

For exchange—The periodic Cicada, T. septendecim. Desire Lepid., espec. Papil., Sphing. & Speyeria. Also Col., espec. Ceramb. & Lucan. John W. Morris, 2704 Genesee St., Syracuse 9, N. Y.

Cynipid and Itonidid galls—American species wanted; purchase or exchange for British species. Fresh or dried. D. Leatherdale, F.R.E.S., Old Woodstock, Oxford, England.

Wanted—Reprints or papers concerning insects taken in Alaska for inclusion in list of Alaskan insects. R. H. Washburn, Alaska Experiment Station, Palmer, Alaska.

Conopidae of the World wanted. Will pay 10¢ to $1.00 for pinned and labelled specimens. S. Camras, 4407 N. Milwaukee Ave., Chicago 30, Illinois.

Anisoptera—Nearctic sp. wanted for exchange, espec. Ophiog., Arigom., Aeschna, Neurocor., Somatoc., Cordulia, Dorocor., Leucor. R. D. Cuyler, N. C. State College, Raleigh, N. C.

Bembicini and Stizini (Hym., Sphec.) of New World wanted for revis. study. Will return upon request or at end of project. James E. Gillaspy, Dept. of Zoology, Univ. Texas, Austin 12, Texas.

Entomological Equipment and Literature

Tight-fitting, light weight Paulownia-wood insect boxes, cork-lined; ideal for private collections, travel or mailing boxes: 8½ x 12", $1.00 plus postage and packing; also smaller sizes.

Medium weight pinning forceps, $.80; fine, straight, 5" forceps, $.45; 10 × hand lens, $1.00; also glass-ware, vials, corks, sheet-cork, unit trays, etc. Payment in U. S. check or money-order. Write us your needs in equipment or literature.

R. Iso, 141, 1-chome, Shimouma, Setagaya-Ku, Tokyo, Japan